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EPA

SOUTH ATLANTIC STRATEGY

FOR TRASH FREE WATERS

U.S. EPA REGION 4

MARCH 2022

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Acknowledgements

The United States Environmental Protection Agency (EPA) would like to acknowledge all the local stakeholders and state and federal partners in North Carolina, South Carolina, Georgia, and Florida who contributed to the development of the South Atlantic Strategy. They provided us with valuable information regarding local barriers, needs and opportunities to address trash issues in Southeastern watersheds. Participants also shared insights on successful efforts to build upon. We also recognize the Kearns & West consulting firm for convening and facilitating the 2021 stakeholder workshops.

Executive Summary

The EPA Trash Free Waters (TFW) Program works to reduce and prevent trash from entering U.S. waters and the ocean. The goal of the TFW Program is to reduce the volume of trash entering our waters by working with partners to implement collaborative solutions that target land-based sources.

The South Atlantic Strategy (SAS) focuses on the south Atlantic region encompassing North Carolina, South Carolina, and the eastern regions of Georgia and Florida. This strategy document aims to help these four coastal states and their municipalities, businesses, non-governmental organizations, and concerned citizens work together to explore more effective ways to reduce the amount of litter and packaging waste that enters their waterways. This document contains a summary of the stakeholder engagement conducted during 12 assessment interviews in April 2021, and four statewide and two regional workshops conducted in May and June 2021.

This strategy document leverages past work at the federal and state levels and leads to the next phases of activity in the south Atlantic. The strategy consists of six goals developed over the course of two months from dialogue among stakeholders during workshops. These stakeholder goals are to:

1) Encourage the use of best practices to reduce downstream litter accumulation;
2) Form public, private, and philanthropic partnerships to obtain necessary resources for litter capture, reduction, and prevention;
3) Standardize trash data so that decision makers in the region can understand sources and conduits to tailor litter-reduction approaches;
4) Encourage source reduction by affecting behavior change and increasing awareness of the impact of upstream communities on coastal areas;
5) Ensure that communities enact and enforce laws that prevent and reduce littering;
6) Develop and advance access to circular economy models and other sustainable materials management practices.

These goals will help accomplish the main objective of SAS – to implement local, state, and regional solutions for reducing the flow of litter, debris, and microplastics into Southeastern watersheds and the Atlantic Ocean. Stakeholders provided input on developing these six goals and discussed potential future projects.

This document provides the primary concerns and priorities of stakeholders with respect to trash. The overarching concern of participants was lack of resources and capacities to address trash issues within their communities. Stakeholders also shared other concerns, including lack of communication among thought leaders within the four states, the increased presence of single-use disposable plastics, the need for regulatory reform in stormwater management, and

the expansion of enforcement authorities and Extended Producer Responsibility (EPR) – a policy approach where the financial physical responsibility for treating or disposing of post-consumer products is shifted to producers and manufacturers.

The intent of the SAS goals and potential projects are to provide local stakeholders with a compendium of ideas and approaches to guide regional efforts into the future.

Trash Free Waters – A Primer

The amount of waste from U.S. consumers continues to rise, more than tripling between 1960 and 2018 (EPA, 2020). When consumer goods are littered or improperly managed, this trash is transported from inland areas to coasts by wind, stormwater conveyances, and streams and rivers.

It is estimated that only 20% of marine litter originates from sea-based sources, including lost or abandoned fishing gear, traps, and accidental or intentional dumping from ships (EPA, 2016). Most of the marine litter catalogued on beaches comes from land-based sources, largely single-use, disposable plastic packaging.

However, this plastic litter does not collect on beaches alone. Plastic is found globally, floating at the surface, suspended throughout the water column, and residing on the floor of almost all fresh and saltwater bodies. Approximately eight million tons of plastic end up in our oceans every year and account for 80% of all marine debris from surface waters to deep-sea sediments (IUCN, 2018). Models suggest that mismanaged trash and litter that is transported from rivers into oceans tends to accumulate in the central oceanic gyres within two years (EPA, 2017). Plastics persist in the environment for decades, breaking down into smaller and smaller pieces called microplastics.

The EPA's TFW Program aims to reduce and prevent trash from entering U.S. waters and the ocean. The program plays a unique role in helping states, municipalities, businesses, non-governmental organizations, and concerned citizens work together to explore more effective ways to reduce the amount of litter entering waters. Cross-sector partnerships are essential components of the program (Figure A). The EPA has provided technical and financial support for numerous projects designed to reduce trash from entering waterways by addressing upstream sources.

Aquatic Trash is an issue that permeates many environmental programs. Through partnerships we can **work together** to tackle this challenge.

WETLANDS

Trash Free Waters partners with the Wetlands Program to ensure that trash prevention is an element of wetlands protection and restoration projects.

URBAN WATERS

Trash Free Waters partners with the Urban Waters Program to support waterfront revitalization in major U.S. cities and urban communities across the U.S.

STORMWATER

Trash Free Waters partners with the Stormwater Program to help reduce the huge amount of trash that enters U.S. waterways via stormwater outfalls.

TRASH FREE WATERS PROGRAM

Trash prevention is an important part of many other EPA programs that work to create cleaner and healthier waterways.

ESTUARIES

Trash Free Waters partners with the National Estuary Program to support trash prevention and clean-up efforts in major estuarine ecosystems.

HEALTHY COMMUNITIES

Trash Free Waters partners with community-based programs to provide help for trash prevention and recycling efforts in rural and suburban communities.

SUSTAINABLE MATERIALS MANAGEMENT

Trash Free Waters supports innovative programs to reduce, recycle, and reuse plastic packaging, and thereby prevent littering and improper disposal of trash.

INTERNATIONAL

The Office of International and Tribal Affairs works with other countries and international organizations to pursue Trash Free Waters goals outside the U.S.

RESEARCH

Trash Free Waters partners with EPA researchers to share information and support new research to better understand the impacts of aquatic trash.

Approach

Introduction

Since its inception in 2013, the Trash Free Waters Program has launched dozens of projects on national, regional, state, and local levels. Project support and implementation for these projects has been guided by the development of strategies that prioritize efforts made by willing stakeholders with available resources. The first of these strategies was published for the mid-Atlantic Region in 2014. It was followed soon after by a Gulf of Mexico Strategy in 2016, and other strategies have evolved in the years since.

The Eastern Continental Divide separates the four SAS-focused states with watersheds that drain to the Atlantic Ocean from those that drain to the Gulf of Mexico. Most of North and South Carolina drain into the Atlantic Ocean, while the western watersheds of Georgia and Florida drain into the Gulf. This strategy only focuses on watersheds that drain into the Atlantic Ocean.

The South Atlantic Strategy's four coastal states include a diverse array of natural features from Florida's Everglades to North Carolina's Outer Banks. Participants from each state brought unique perspectives on local barriers and opportunities.

Assessment

An initial evaluation was conducted by interviewing thought leaders with relevant knowledge of marine litter reduction and prevention. Representatives from each state with expertise in water quality, watershed management, and sustainable materials management were interviewed. These 45- to 60-minute structured interviews were designed to identify existing trash-abatement efforts and potential "project champions" who would lead future efforts. The interviews also provided information on data gaps, barriers to local projects, and opportunities for advancing litter prevention.

The consulting team also reviewed National Oceanic & Atmospheric Administration (NOAA) Marine Debris Action Plans from Florida, North Carolina, and the Southeast to avoid duplication of efforts, leverage existing progress, and identify opportunities for collaboration.

State Based Workshops

The EPA invited thought leaders to three-hour virtual sessions in the following states:

- South Carolina on May 12, 2021
- Florida on May 13, 2021
- Georgia on May 18, 2021
- North Carolina on May 20, 2021

In these initial sessions, participants described trash-abatement efforts, which primarily consisted of cleanup events. The EPA stressed that upstream source reduction should be a

priority for any project proposed as part of the SAS. During the first-round sessions, participants highlighted the proliferation of single-use plastics and cigarette butts in coastal areas, and abandoned tires and appliances in rural areas of the Southeast. Further, participants reflected on the potential benefits of regulatory reform related to stormwater management and the need to expand enforcement authorities. Extended Producer Responsibility was another concern.

Due to the virtual nature of the sessions, participants used an online collaborative whiteboard technology, Miro, to refine the goals that emerged from the initial interviews and develop project concepts for state and local implementation.

Following the first round of workshops, the EPA blended all state goals into six overarching goals for the south Atlantic area.

For the second and final round of discussions, the EPA combined representatives from two states into two-hour workshops:

- Florida and Georgia on June 29, 2021
- North Carolina and South Carolina on July 1, 2021

After initial discussions on the blended regional goals, workshop participants shared project concepts and identified potential project champions via another virtual collaborative technology, RetroBoard.

The Path Forward

Additional work includes:

1) Prioritizing projects for implementation in the south Atlantic watershed;
2) Identifying project champions to lead priority projects; and
3) Establishing a SAS working group.

The project champion guides efforts from project proposal, through implementation, to completion. The champion should be a leader in a community who can coordinate effectively with local government, businesses, NGOs, and citizens.

The goals and potential project concepts in the following section were suggested by workshop participants. Stakeholders can use the comprehensive list of project ideas below to prioritize which activities should be implemented as resources become available.

GOALS

GOALS DEVELOPED FROM THE STATE BASED DIALOGUES

The South Atlantic Strategy for Trash Free Waters contains six stakeholder-driven goals, each of which has recommended projects that would address sources of trash pollution and thereby reduce the flow of litter, debris and microplastics into coastal watersheds and the Atlantic Ocean.

The Six Goals of the South Atlantic Strategy

The South Atlantic Strategy for Trash Free Waters contains six stakeholder-driven goals, each of which has recommended projects that would address sources of trash pollution and thereby reduce the flow of litter, debris and microplastics into coastal watersheds and the Atlantic Ocean.

Goal 1: Encourage the use of best practices to reduce downstream litter accumulation.

Goal 2: Form public, private, and philanthropic partnerships to obtain necessary resources for litter capture, reduction, and prevention.

Goal 3: Standardize trash data so that decision makers in the region can understand sources and conduits to tailor litter-reduction approaches.

Goal 4: Encourage source reduction by affecting behavior change and increasing awareness of the impact of upstream communities on coastal areas.

Goal 5: Ensure that communities enact and enforce laws that prevent and reduce littering.

Goal 6: Develop and advance access to circular economy models and other sustainable materials management practices.

GOAL #1

Encourage the use of best practices to reduce downstream litter accumulation.

1.1 Encourage Best Practices	
Communities should learn and benefit from each other by sharing information on Best Management Practices (BMPs) that are proven to help reduce and prevent litter.	
1.1.1	Come up with a collection of best practices for municipal waste and water systems on design and maintenance practices (street sweeping, storm-drain catchments, trash can siting, etc.).
1.1.2	Create a toolkit of successful approaches to address local littering issues including education, enforcement, and prevention.
1.1.3	Establish and maintain a database of proven technologies stormwater professionals have implemented. Interactive features would allow users to share feedback regarding best practices and technologies.
1.1.4	Launch a best practices webinar series.
1.1.5	Develop and expand upon existing stormwater and waste management BMP training courses required as “Continuing Education” for not only licensed professionals, but also for elected officials, neighborhood representatives, etc.

1.2 Student Competitions	
Competitions can be used to inspire creativity and share innovative ideas for addressing trash and litter issues.	
1.2.1	Develop an academic competition, where sponsors set an annual challenge, and then K-12 schools compete for regional awards.
1.2.2	Develop an academic competition, where sponsors set an annual challenge, and then colleges and universities compete for regional awards.

1.3 Universal Waste Management and Waste Amnesty Day	
Improving access and ease of use for proper waste management can reduce improper disposal of waste.	
1.3.1	Increase access to waste management services, such as payment for plastic at recycling drop-off locations, and/or expansion of curbside pick-up, tire deposit, and chemical and electronics disposal, especially for underserved and rural communities.
1.3.2	Reduce barriers to proper waste and recycling disposal by minimizing cost and/or providing economic incentives and improving ease of use (especially for low-income and rural communities).
1.3.3	Reduce illegal dumping by supporting county/city waste amnesty days.

1.4 Project Implementation	
Communities should consider including public awareness components when implementing litter reduction and prevention projects.	
1.4.1	Expand the existing focus on coastal cleanups to include upstream source-reduction efforts that address the issues at their sources.
1.4.2	Utilize special events permits as an opportunity to educate organizers of large-scale events on best practices.
1.4.3	Deploy innovative trash capture technologies and expand existing pilot projects through increased community engagement and lessons learned for others.
1.4.4	Create toolkits to address local littering issues that address education, enforcement, and prevention.
1.4.5	Create a multilingual awareness campaign or video library outlining actions a homeowner can take before a storm to reduce litter.

GOAL #2

Form public, private, and philanthropic partnerships to obtain necessary resources for litter capture, reduction, and prevention.

2.1 Hospitality & Recreational Sector Designations and Certifications	
Designation or certification programs should incentivize businesses that use reusable and/or biodegradable products or adopt single-use product consumption standards. Hotels, restaurants, marinas, and other recreation and tourism sectors could influence consumer behavior by rewarding and recognizing voluntary contributions to litter and waste reduction efforts.	
2.1.1	Develop voluntary sustainable business certifications on a community-wide scale that can be jointly run by local governments and nonprofit organizations, with joint funding from community foundations and government grants.
2.1.2	Work with the restaurant industry to implement (or expand upon an existing) blue-certification or “ocean-friendly” restaurant designation program to incentivize new restaurant standards for single-use product consumption and waste, pollution, and the transition to reusable or biodegradable products.

2.2 Regionwide Marine Litter Conferences and Dialogues	
Information exchange and collaboration among stakeholder groups in the south Atlantic region can promote efficiencies and avoid duplication of efforts with respect to litter reduction.	
2.2.1	Host a region-wide conference among Keep America Beautiful State and Regional Affiliates and/or local Riverkeepers.
2.2.2	Convene existing groups (state-wide water coalitions, NGO working groups, NOAA Marine Debris workgroups, etc.) in informative discussions on litter-reduction policies and practices.
2.2.3	Engage state-based recycling organizations in marine litter reduction and prevention dialogue and strategies including the Southeast Recycling Development Collaborative (SERDC), Southern Waste Information eXchange, Recycle Florida Today, Georgia Recycling Coalition, Carolina Recycling Association, and others.

2.3 One Federal Family	
Federal agencies in the southeast should collaborate in the reduction and prevention of marine litter to promote efficiencies and avoid duplication of efforts. SAS projects should specifically address upstream sources of litter and mismanaged trash, while other federal projects address marine debris in near-shore and oceanic environments.	
2.3.1	Communicate clear and common goals related to litter management, water quality, and ocean health among federal agencies and to the public.
2.3.2	Share data, analysis, and conclusions between federal agencies to provide a better common understanding of the sources, impacts, and potential solutions to marine litter.

2.4 The Uncommon Dialogue	
Spur innovative problem solving through non-traditional engagement formats and collaborations. This would attract a larger and more diverse group of participants to address litter problems virtually or in person.	
2.4.1	Convene hackathons – events where subject-matter experts and empowered citizens can come together to solve complex environmental problems through creative teamwork and innovative approaches – focused on the reduction and prevention of aquatic trash, litter, and microplastics.
2.4.2	Set up a funding event between private sector organizations, foundations, and philanthropies as well as project champions and supporting constituencies to support SAS work. Project champions can present turnkey solutions and hope for a match with a prospective funder.
2.4.3	Develop Community-Based Social Marketing (CBSM) projects to solve litter problems. Many CBSM projects result in environmental improvements through voluntary human behavior changes.
2.4.4	Develop an academic competition where sponsors set an annual challenge, and then K-12 schools or colleges and universities compete for regional awards.
2.4.5	Implement an award program (e.g., Green Awards or Beautification Awards) so municipalities can recognize local businesses and organizations working to address littering and reduce the consumption of single-use items.

GOAL #3

Standardize trash data so that decision makers in the region can understand sources and conduits to tailor litter-reduction approaches.

3.1 Uniformity of Litter-Data Collection	
Decision makers need reliable litter-collection data to make informed decisions. Having basic uniformity within data collection reporting can help leaders address litter and trash issues across the south Atlantic region.	
3.1.1	Convene a dialogue among leading agencies regarding the differences among data-collection protocols and mobile/online applications.
3.1.2	Establish a central, publicly accessible hub for sharing litter data in the region that synthesizes citizen science data from various platforms (e.g., Marine Debris Tracker, Clean Swell, Litterati, etc.).
3.1.3	Improve data comparability across time and geographies by using existing tools like the EPA's Escaped Trash Assessment Protocol (ETAP) or other widely used lists in the Marine Debris Tracker.

3.2 Litter Hotspots, Conduits and Conveyances	
State and local leadership, along with citizens, should identify litter hotspots along with the conduits that transport litter into waterways and oceans to effectively address the sources.	
3.2.1	Identify and share recommendations on reducing the most littered items found in the Southeast and craft potential approaches to identify source locations.
3.2.2	Identify potential litter hotspots using existing data from local cleanup events overlayed with GIS layers of local watersheds.
3.2.3	Trace the movement of litter through conduits and conveyances to inform strategic placement of catchment devices. Mapping of source pathways can inform municipal leaders of the most appropriate siting of infrastructure improvements and other interventions.

3.3 Data Analysis	
Encourage increased use of new and existing data compiled by existing authorities and local organizations.	
3.3.1	Encourage municipalities and organizations to report any pertinent litter data to local decision-makers and suggest approaches to address potential sources.
3.3.2	Encourage state stormwater permit writers to incorporate effective trash provisions using existing data.
3.3.3	Encourage municipal stormwater managers to use data to inform trash mitigation practices in stormwater management plans.

GOAL #4

Encourage source reduction by affecting behavior change and increasing awareness of the impact of upstream communities on coastal areas.

4.1 Connect People with Place	
Community-based TFW efforts have proved to be most successful when local citizens, NGOs, businesses, and government leaders are organized to share information and resources and collectively implement trash source reductions.	
4.1.1	Utilize Community-Based Social Marketing (CBSM) to promote programs which encourage citizens to voluntarily adopt environmentally friendly behaviors (i.e., reduce use of single-use plastics).
4.1.2	Showcase an art exhibit or public display at an aquarium, city hall, or other public space or use community events such as fairs, festivals, and town halls to connect citizens, businesses, and government leaders to the localized litter issue and share information and resources.
4.1.3	Implement an interactive social media campaign which asks individuals to pledge or commit to consuming fewer single-use plastics.
4.1.4	Utilize sites like Meetup.com and VolunteerCleanup.Org (e.g., Florida) – free community website resources – that connect cleanup hosts with volunteers looking to attend cleanups and invest in their communities.
4.1.5	Encourage Keep America Beautiful affiliates to expand local adopt-a-spot programs (e.g., roads, lakes, parks, shorelines, etc.).
4.1.6	Promote reward programs that incentivize action on marine litter.

4.2 Interactive Educational Programs at K-12 Levels	
Education should include lessons on the impact of trash, plastics, and microplastics on water quality and the food chain. When equipped with this knowledge, younger generations often influence adult behavior.	
4.2.1	Develop science modules on the sources and quantities of aquatic trash and transport of litter and microplastics that meet current "STEM" standards – Science, Technology, Engineering and Mathematics standards.
4.2.2	Promote waste management and marine-litter related community service programs to students.
4.2.3	Build capacity and passion by setting up marine litter-related intern programs for local organizations and governments.

4.3 Higher Learning and Experiential Training	
TFW education should continue into collegiate coursework and activities and beyond to enhance awareness and encourage environmental stewardship.	
4.3.1	Incorporate marine litter-related coursework into non-environmental classes such as statistics, law, policy, and psychology.
4.3.2	Provide opportunities for students to collect and present data at professional convenings at the local and regional level.
4.3.3	Improve waste disposal behaviors and reduce single-use plastic consumption at college and university campuses.
4.3.4	Develop an interactive educational program that helps bridge the urban-coastal divide by highlighting the impacts of urban activity on downstream communities.

4.4 Extend Outreach Programs Designed for Equitable and Inclusive Engagement	
Litter reduction projects should address underserved communities which have not historically had the tools and resources to address these issues.	
4.4.1	Focus funding and resources on communities most affected by the negative impacts of litter.
4.4.2	Provide trash and litter-related educational materials in multilingual formats when possible.
4.4.3	Leverage existing environmental justice and partnership programs, both locally and federally (e.g., the Urban Waters Federal Partnership and the National Estuary Program).

GOAL #5

Ensure that communities enact and enforce laws that prevent and reduce littering.

5.1 Illegal Dumping	
Illegal dumping is widespread and undercuts prevention efforts. Collaborative approaches noted in other SAS goals must be balanced by stronger local and state government enforcement.	
5.1.1	Offer workshops for law enforcement officers on state-specific litter laws and solutions to addressing illegal dumping (similar to those currently provided in Georgia).
5.1.2	Ensure that law enforcement officials receive continuing education credits for attending workshops related to illegal dumping.
5.1.3	Expand capacities to monitor and enforce illegal dumping through video surveillance or community-based methods.
5.1.4	Elevate fines and penalties associated with illegal dumping.
5.1.5	Create model trash-related community service programs for courts to assign where appropriate.

5.2 Littering	
Awareness and enforcement of litter laws are rarely prioritized by law enforcement. Improvements in this area would significantly contribute to litter source-reduction efforts.	
5.2.1	Elevate fines and penalties associated with littering.
5.2.2	Develop model trash ordinances and handbooks for local governments to adopt (this could include enacting policies to prevent balloon releases).
5.2.3	Explore technologies that allow law enforcement to trace litter.
5.2.4	Encourage citizens or volunteers to report littering to authorities.

5.3 Stormwater Management	
Ensure that trash-related provisions in permits work to reduce the litter discharged from municipalities via stormwater systems and transported to the oceans.	
5.3.1	Encourage states to improve MS4 – Municipal Separate Storm Sewer System permit requirements to minimize litter and debris discharged during normal rain events and high consequence storms. Examples of permits can be found in the EPA's Trash Stormwater Permit Compendium.
5.3.2	Invest in storm drain markings, video surveillance technology, and anti-litter signage, particularly in highly trafficked areas near litter hotspots.

GOAL #6

Develop and advance access to circular economy models and other sustainable materials management practices.

6.1 Minimize the Consumption of Single-Use Items and Plastics	
Encourage NGOs to engage with local governments and businesses to reduce the use of single-use disposable items. These are usually found to make up the majority of trash collected during cleanups.	
6.1.1	Incentivize business sectors (e.g., restaurants, hotels) to reduce the use of single-use packaging by offering reusable or compostable tableware or charge customers a small fee for single-use items such as disposable cups, ketchup packets, etc.
6.1.2	Explore more reuse/refill options such as the creation of a closed-loop, reusable to-go container services system for a university campus or local businesses to join as a co-op.
6.1.3	Utilize plastic/waste-free programs and campaigns for local businesses, including “how-to” guides for reducing consumption.
6.1.4	Engage with local governments to enact policies which help minimize the use of single-use plastics such as bags, cups, straws, containers, plates, bottles, etc.
6.1.5	Encourage local delivery services to require an "opt in" (by request only) check-off box on all take-out and delivery food orders for accessories like condiments, bags, straws, and utensils.
6.1.6	Build community support for state-specific or a regional bottle bill or Styrofoam tax or ban.

6.2 Infrastructure Investment	
Improvements to waste management infrastructure and trash capture can reduce the amount of mismanaged trash entering the oceans.	
6.2.1	Promote public sector investment in reclamation and recycling facilities.
6.2.2	Identify and promote technology solutions that capture trash and litter at or near their sources.

6.3 Circular Economy and Sustainable Materials Management	
Explore sustainable materials management, including the circular economy model – a zero-waste systematic approach.	
6.3.1	Educate lawmakers and the public on how sustainable materials management and circular economy approaches can help address marine litter.
6.3.2	Use the Circularity Assessment Protocol (CAP) created by the University of Georgia to assess recent progress and later to engage the public.

6.4 Extended Producer Responsibility (EPR)	
Extended Producer Responsibility is a potential strategy for shifting the expense and management of environmental costs associated with the lifecycle of a product (and its packaging) on the producer of the product.	
6.4.1	Initiate a regional dialogue about EPR requirements (similar to those passed by Maine and Oregon legislature).

References

Environmental Protection Agency (EPA), Trash Free Waters: Sources of Aquatic Trash. (2016). Retrieved from https://www.epa.gov/trash-free-waters/sources-aquatic-trash

Environmental Protection Agency (EPA), Trash Free Waters: The Movement of Aquatic Trash. (2017). Retrieved from https://www.epa.gov/trash-free-waters/movement-aquatic-trash

Environmental Protection Agency (EPA), National Overview: Facts and Figures on Materials, Wastes and Recycling. (2020). Retrieved from https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#:~:text=These%20Facts%20and%20Figures%20are,25%20million%20tons%20were%20composted

International Union for Conservation of Nature (IUCN), Issues Brief: Marine Plastics. (May 2018). Retrieved from https://www.iucn.org/resources/issues-briefs/marine-plastics